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REMARKS

These remarks follow the order of the paragraphs of the office action. Relevant portions of the office action are shown indented and italicized.

For the record, although applicants maintain their arguments expressed in the response to the previous office communication regarding the differences of the claimed invention and the cited art, claims are amended herein to use allowable subject matter to bring the application quickly to allowance.

DETAILED ACTION

Claims 1-5, 7, 8, 14, 15, 16, 17, 18, 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Abraham et al.

In response, the applicants respectfully state that the inventions in Claims 1-5, 7, 8, 14, 15, 16, 17, 18, 19 are apparently not anticipated by Abraham. The invention claimed in Claims 1-5, 7, 8, 14, 15, 16, 17, 18, 19, is for, "[A] transducer for detecting movement of an article mounted for movement in a plane, the transducer comprising: a heater facing the plane of movement of the article and having a temperature dependent resistance; and, an edge defined in the article between regions of different thermal conductivity; wherein, as the article describes the movement, the edge moves relative to the heater producing a corresponding variation in heat loss from the heater and a corresponding variation in resistance of the heater."

Whereas, the cited art to Abraham is entitled, "Thermal Proximity Imaging of Hard Substrates." The abstract of Abraham reads, "[W]e discuss a new measurement technique called thermal proximity sensing (TPS) and its application to the inspection of magnetic hard-disk surfaces. This method used the magneto-resistive (MR) readback element of a hard-disk file in a novel thermally sensitive mode to actively sense the air-bearing gap spacing while the disk spins under the slider. We present model calculations that describe the origin of the thermal sensitivity and its range of applicability. By collecting height information as a function of position, we have obtained high resolution images of a disk topography with sensitivity in the subnanometer range.

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1 Initial results of the technique, obtained on a test stand, showed an exceptional imaging ability
2 for surface features. We have also obtained useful surface structure data from in situ
3 measurements of disk surface defects in an operating hard-disk file." Thus Abraham is not
4 concerned with a "transducer for detecting movement of an article mounted for movement in a
5 plane," as are Claims 1-5, 7, 8, 14, 15, 16, 17, 18, 19.

6 *As to claims 1-3, 14-17, 18, Abraham et al teach (Figure 2) a system, including: spinning*
7 *disk (article); heater head whose resistance varies with temperature (p- 3996, left hand*
8 *col.); an edge defined between the flat top surface of the article and either the bump or*
9 *pit; wherein, as the article undergoes movement the edge moves relative to the heater*
10 *producing a variation in heat loss from the heater and the corresponding variation in*
11 *resistance of the heater. .*

12 In response, the applicants respectfully state that apparently Abraham is not concerned with
13 "detecting movement of an article mounted for movement in a plane," or with the steps for
14 detecting. Abraham is in regard to the inspection of magnetic hard-disk surfaces, not edges or
15 edge measurements. A review of the cited portion of Abraham (p. 3998, left hand col.) shows
16 paragraphs on theory upon which Abraham's paper is based. Abraham discusses MR
17 'temperature at the 'head under bias conditions', and 'heat flow out of the [MR] head and into
18 the surrounding environment' This does not refer to a 'heater' element "facing the plane
19 of movement of the article and having a temperature dependent resistance." This is not related to
20 an magneto-resistive (MR) readback element of a hard-disk file, as is Abraham. Also, reference
21 in Abraham to "pits or bumps on the disk surface," are certainly not concerned with "an edge
22 defined by the article," where the Abraham's article defined by the office communication is
23 Abraham's 'spinning disk'. An edge is not a pit or a bump and is not on a surface. A pit or a
24 bump is certainly not "an edge defined in the article between regions of different thermal
25 conductivity," as is the edge of claim 1. Furthermore, since there is no heater element in
26 Abraham, there is no variation in heat loss of a heater, and certainly not "a corresponding
27 variation in resistance of the heater." Also, there is certainly not, "an edge defined in the article
28 between regions of different thermal conductivity; wherein, as the article undergoes the
29 movement, the edge moves relative to the heater producing a corresponding variation in heat loss
30 from the heater and a corresponding variation in resistance of the heater." Thus, Abraham does

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1 not have all the elements of claim 1, which is allowable over the cited art. Thus, claim 1 and all
2 claims that depend on claim 1 are allowable over the cited art.

3 Claim 1 is amended to have all the limitations of claim 6. This certainly brings claim 1 and all
4 claims that depend on it to allowance.

5 Regarding Claim 2, Abraham's 'article' defined by the office communication is Abraham's
6 'spinning disk', apparently has no indication of being "mounted for translational movement" in a
7 plane. Thus claim 2 is allowable over Abraham for itself and because it depends on allowable
8 claim 1.

9 Regarding Claim 3, Abraham's 'article' defined by the office communication is Abraham's
10 'spinning disk', apparently has no indication of having and using an edge "located in a plane
11 surface of the article". Thus claim 3 is allowable over Abraham for itself and because it depends
12 on allowable claim 1

13 *As to claims 4, 19, note the shape of the grids in figure 9.*

14 In response, the applicants respectfully state that regarding Claim 4, Abraham's 'article' defined
15 by the office communication is Abraham's 'spinning disk', apparently has no indication of
16 having and using an edge that "is rectilinear." This is apparently not related to "the shape of the
17 grids in Figure 9," cited above. Thus claim 4 is allowable over Abraham for itself and because it
18 depends on allowable claim 1.

19 Regarding Claim 19 which depends on claim 18 which depends on claim 17, as discussed with
20 regard to claim 1, similarly regarding claim 17, Abraham is not concerned with "detecting
21 movement of an article mounted for movement in a plane," or with the steps for detecting.
22 Abraham is in regard to the inspection of magnetic hard-disk surfaces, not edges or edge
23 measurements. A review of the cited portion of Abraham (p. 3998, left hand col.) shows
24 paragraphs on theory upon which Abraham's paper is based. Abraham discusses MR
25 'temperature at the 'head under bias conditions', and 'heat flow out of the [MR] head and into

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1 the surrounding environment" This does not refer to a 'heater' element "facing the plane
2 of movement of the article and having a temperature dependent resistance." This is not related to
3 an magneto-resistive (MR) readback element of a hard-disk file, as is Abraham. Also, reference
4 in Abraham to "pits or bumps on the disk surface," are certainly not concerned with "an edge
5 defined by the article," where the Abraham's article defined by the office communication is
6 Abraham's 'spinning disk'. An edge is not a pit or a bump and is not on a surface. A pit or a
7 bump is certainly not "an edge defined in the article between regions of different thermal
8 conductivity," as is the edge of claim 1.. Furthermore, since there is no heater element in
9 Abraham, there is no variation in heat loss of a heater, and certainly not "a corresponding
10 variation in resistance of the heater." Also, there is certainly not, "an edge defined in the article
11 between regions of different thermal conductivity; wherein, as the article undergoes the
12 movement, the edge moves relative to the heater producing a corresponding variation in heat loss
13 from the heater and a corresponding variation in resistance of the heater." Thus Abraham does
14 not have all the elements of claim 17, which is allowable over the cited art. Thus all claims that
15 depend on claim 17 are allowable over the cited art.

16 Claim 17 is amended to have the limitation of objected-to claim 6. This certainly brings claim
17 17 and all claims that depend on it to allowance.

18 Abraham's 'article' defined by the office communication is Abraham's 'spinning disk',
19 apparently has no indication of having and using an edge "located in a plane surface of the
20 article". Thus claim 18 is allowable over Abraham for itself and because it depends on allowable
21 claim 17.

22 Abraham's 'article' defined by the office communication is Abraham's 'spinning disk',
23 apparently has no indication of having and using an edge that "is rectilinear." This is apparently
24 not related to "the shape of the grids in Figure 9," cited above. Thus claim 19 is allowable over
25 Abraham for itself and because it depends on allowable claim 1.

26 *As to claims 5,7,19 the heater will overlap, and have its bottom surface parallel to the*
27 *top, planar surface of the disk at some time. (Look at Figure 2, were the head moves*

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1 *parallel to the surface of the disk, and where the defined edged above are located on the*
2 *most planar surface of the disc.)*

3 In response, the applicants respectfully state that regarding claim 5, Abraham's 'article' defined
4 by the office communication is Abraham's 'spinning disk', apparently has no indication of being
5 or having a "heater comprises an elongated body overlapping and extending parallel to the plane
6 surface and perpendicular to the edge." Thus claim 5 is allowable over Abraham for itself and
7 because it depends on allowable claim 1.

8 Abraham's 'article' defined by the office communication is Abraham's 'spinning disk',
9 apparently has no indication of being or having a "heater comprises an elongated body
10 overlapping and extending parallel to the plane surface and perpendicular to the edge," or
11 concerned with or reference to a "elongated body comprises a silicon cantilever having a doped
12 resistive region formed therein." Thus claim 6 is allowable over Abraham for itself and because
13 it depends on allowable claim 1.

14 Regarding Claim 7, Abraham's 'article' defined by the office communication is Abraham's
15 'spinning disk', apparently has no indication of having and using an edge "located on the
16 periphery of the plane surface." Thus claim 7 is allowable over Abraham for itself and because it
17 ultimately depends on allowable claim 1.

18 Applicants fail to understand the relevance or any back-up for office communication's statement
19 above, "[A]s to claims 5, 7, 19, the heater will overlap, and have its bottom surface parallel to the
20 top, planar surface of the disk at some time." Relevance and back-up are respectfully requested
21 for this office communication's statement. Even if this were so, this does not anticipate and is
22 not the invention in claims 5, 7, 19. Thus, claims 5, 7, 19 are allowable for themselves and
23 because each depends on an allowable claim.

24 *As to claim 8, note the bump in Figure 2. It is this bump that defines one of the edges*
25 *as described above.*

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1 In response, the applicants respectfully state that regarding claim 8, applicants fail to understand
2 the relevance of noting "the bump in Figure 2," stated above. The limitation in claim 8 which
3 ultimately depends on claims 1, 4 and 5, is not related to an magneto-resistive (MR) readback
4 element of a hard-disk file, as is Abraham. Also, reference in Abraham to "pits or bumps on the
5 disk surface," are certainly not concerned with "an edge defined by the article," where the
6 Abraham's article defined by the office communication is Abraham's 'spinning disk'. An edge
7 is not a pit or a bump and is not on a surface. A pit or a bump is certainly not an edge "formed as
8 a step in the plane surface," as is the edge of claim 8. Thus claim 8 is allowable over Abraham
9 for itself and because it depends on allowable claim 1.

10 *As to claim 15, there is a slot between each of the 18 lines in Figure 9. Just look at*
11 *Figure 9, and see that there are two raised lines, the region between being a depression*
12 *like a slot.*

13 In response, the applicants respectfully state that regarding claim 15, applicants fail to understand
14 the relevance to the limitation in claim 15, or any back-up, for office communication's statement
15 above, "[A]s to claim 15, there is a slot between each of the 18 fines in Figure 9." Reference in
16 Abraham to "pits or bumps on the disk surface," are certainly not concerned with "an edge
17 defined by the article," where the Abraham's article defined by the office communication is
18 Abraham's 'spinning disk'. An edge is not a pit or a bump and is not on a surface. A pit or a
19 bump is certainly not an edge "in the form of a side of a slot formed in the surface and extending
20 radially from the axis of the rotation," as is the edge of claim 15. Thus claim 15 is allowable
21 over Abraham for itself and because it depends on allowable claim 1.

22 *As to claim 16, each one of the lines 18 of Figure 9 is shaped like a spoke.*
23

24 In response, the applicants respectfully state that regarding claim 16, the reference in Abraham to
25 "pits or bumps on the disk surface," are certainly not concerned with "an edge defined by the
26 article," where the Abraham's article defined by the office communication is Abraham's
27 'spinning disk'. An edge is not a pit or a bump and is not on a surface. A pit or a bump is
28 certainly not an edge used in a limitation "wherein the surface comprises a spoke extending
29 radially from the axis of rotation and the edge comprises a side of the spoke," as is the edge of
30 claim 16. Applicants fail to understand the relevance to the limitation in claim 16, and request

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1 back-up, for office communication's statement above, "[A]s to claim 16, each one of the lines 18
2 of Figure 9 is shaped like a spoke." According to the legend for Abraham Fig. 9, the shape of
3 the lines in Fig 9 is to "provide a grid of height and widths for TPS studies." This has nothing to
4 do with spokes, and certainly with spokes that have an edge that "comprises a side of the spoke."
5 Thus claim 16 is allowable over Abraham for itself and because it depends on allowable claim 1.

6 *As to Applicant's REMARKS, consider the following:*

7 *As to p. 12, lines 5-6, the "spinning magnetic disc" rotates on a plane. The "AC change"*
8 *(p 3998, left col., second paragraph) is indicative of movement of a disc with pits/bumps.*
9 *When there is an AC change, there is a detection of movement. When that same disc is not*
10 *providing for an AC change, there is not movement. Besides, the reference teaches*
11 *everything in the body of this claim.*

12 *As to p. 12, line 7, the intersection of the bump (and pit) with the flat surface is an edge*

13 *As to p. 12, lines 10-12, heat is effectively directed to the disc, and to that extent the*
14 *heater faces the disc.*

15 *As to p. 12, lines 15-16, Applicant is not addressing the applied rejection.*

16 *As to p. 12, lines 18-19, see p.3998, left para, top 5 lines.*

17 *As to p. 12, line 19, heat is produced at the head (p. 3998, top 5 lines), and the*
18 *resistance varies (p.3998. left hand col., last para).*

19 *As to p. 13, top three lines. Please note that the movement recited in claim 2 is not*
20 *claimed as being the "movement" (of claim 1) that is detected in claim 1. The claim is a*
21 *bit broader than what is argued. Though the reference employs a "spinning disk", the disc*
22 *(of Figure 2) is horizontal, and moves linearly when the disc housing is displaced, even*
23 *slid/pushed on a surface.*

24 *As to p. 13, lines 11-17; Abraham senses pit and bumps, and Figure 9 illustrates*
25 *additional bumps. The grids are elongated, having a length and width.*

26 In response, the applicants respectfully state that as indicated above applicants take exception
27 with the equivalencies of the elements in the invention and the referenced art.

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1 *Claims 6, 9-13 objected to as being dependent upon a rejected base claim, but would be*
2 *allowable if rewritten in independent form including all of the limitations of the base*
3 *claim and any intervening claims.*

4 In response, the applicants respectfully state that all the limitations of objected-to claim 6, which
5 includes claims 2-5, are included in amended claim 1. Claims 2-6 are canceled.

6 The dependencies of claims 7-9, 11 are amended.

7 Claim 17 is amended to have limitations of claim 6.

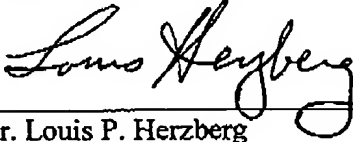
8 Claim 19 is amended to remove a redundant statement.

9 It is anticipated that this amendment brings the allowance of claims 1, 7-20. In the event that any
10 question remains, please contact the undersigned before issuing an office communication having
11 a FINAL status.

12 Please charge any fee necessary to enter this paper to deposit account 50-0510.

13 Respectfully submitted,

14 By:


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